

Distributional Records of Bats from the Caribbean Lowlands of Belize and Adjacent Guatemala and Mexico

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ABSTRACTS

Thirty new species records are presented for the bat fauna of Belize, along with secondary records for eight bats that had been recorded previously from that country. Contiguous lowland localities in Guatemala provided new department records: nine for El Petén, five for Izabal, and two for Alta Verapaz. The El Petén records include the first confirmation of *Vampyrum spectrum* in Guatemala. One state record for Quintana Roo, Mexico, is reported. These species represent the genera *Saccopteryx*, *Balantiopteryx*, *Diclidurus*, *Noctilio*, *Pteronotus*, *Mormoops*, *Micronycteris*, *Lonchorhina*, *Macrophyllum*, *Tonatia*, *Mimon*, *Phyllostomus*, *Phylloderma*, *Trachops*, *Chrotopterus*, *Vampyrum*, *Glossophaga*, *Uroderma*, *Vampyrops*, *Vampyrodes*, *Vampyressa*, *Chiroderma*, *Artibeus*, *Centurio*, *Diphylla*, *Natalus*, *Myotis*, *Eptesicus*, *Lasiurus*, *Bauerus*, *Eumops*, and *Molossus*. Range extensions are acknowledged for *Saccopteryx leptura*, *Diclidurus virgo*, *Noctilio leporinus*, *Micronycteris nicefori*, *Macrophyllum macrophyllum*, *Phyllostomus discolor*, *Vampyrum spectrum*, *Glossophaga commissarisi*, *Uroderma bilobatum*, *Vampyrodes caraccioli*, *Artibeus toltecus*, and *Bauerus dubiaquercus*. A checklist of the bat fauna of Belize, which stands at 66 species, is presented.

Se registran 30 especies que no habían sido citadas antes para la fauna de murciélago de Belice, con registros secundarios para ocho murciélagos ya conocidos de ese país. En ciertas localidades contiguas de las tierras bajas de Guatemala, se obtuvieron nuevos registros departamentales: nueve de El Petén, cinco de Izabal, y dos de Alta Verapaz. Los registros de El Petén incluyen la primera confirmación de *Vampyrum spectrum* en Guatemala. Además, se presenta un nuevo registro estatal para Quintana Roo, México. Las especies obtenidas están segregadas en los géneros *Saccopteryx*, *Balantiopteryx*, *Diclidurus*, *Noctilio*, *Pteronotus*, *Mormoops*, *Micronycteris*, *Lonchorhina*, *Macrophyllum*, *Tonatia*, *Mimon*, *Phyllostomus*, *Phylloderma*, *Trachops*, *Chrotopterus*, *Vampyrum*, *Glossophaga*, *Uroderma*, *Vampyrops*, *Vampyrodes*, *Vampyressa*, *Chiroderma*, *Artibeus*, *Centurio*, *Diphylla*, *Natalus*, *Myotis*, *Eptesicus*, *Lasiurus*, *Bauerus*, *Eumops*, y *Molossus*. Para cada una de las siguientes especies de murciélagos se anota el alcance geográfico de su distribución conocida: *Saccopteryx leptura*, *Diclidurus virgo*, *Noctilio leporinus*, *Micronycteris nicefori*, *Macrophyllum macrophyllum*, *Phyllostomus discolor*, *Vampyrum spectrum*, *Glossophaga commissarisi*, *Uroderma bilobatum*, *Vampyrodes caraccioli*, *Artibeus toltecus*, y *Bauerus dubiaquercus*. Se incluye una lista de 66 especies que representan la fauna de murciélagos de Belice.

Apresenta-se records de 30 novas espécies de morcegos para Belice, e de oito espécies pouco conhecidas no país. Áreas adjacentes, na Guatemala, providenciaram novos records para: El

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Petén (nove espécies), Izabal (cinco espécies), e Alta Verapaz (dois espécies). Os records de El Petén incluem as primeiras confirmações de *Vampyrum spectrum* na Guatemala. Um novo record para Quintana Roo, México, é incluído. Estas espécies representam os generos *Saccopteryx*, *Balantiopteryx*, *Diclidurus*, *Noctilio*, *Pteronotus*, *Mormoops*, *Micronycteris*, *Lonchorhina*, *Macrophyllum*, *Tonatia*, *Mimon*, *Phyllostomus*, *Phylloderma*, *Trachops*, *Chrotopterus*, *Vampyrum*, *Glossophaga*, *Uroderma*, *Vampyroops*, *Vampyrodes*, *Vampyressa*, *Chiroderma*, *Artibeus*, *Centurio*, *Diphylla*, *Natalus*, *Myotis*, *Eptesicus*, *Lasiurus*, *Bauerus*, *Eumops*, e *Molossus*. Reconhece-se extensões nas áreas onde são encontrados *Saccopteryx leptura*, *Diclidurus virgo*, *Noctilio leporinus*, *Micronycteris nicefori*, *Macrophyllum macrophyllum*, *Phyllostomus discolor*, *Vampyrum spectrum*, *Glossophaga commissarisi*, *Uroderma bilobatum*, *Vampyrodes caraccioli*, *Artibeus toltecus*, e *Bauerus dubiaquercus*. Apresenta-se uma lista da fauna de morcegos em Belice, que agora conta com 66 espécies.

Introduction

Inventories of bat communities in Mexico and Central America have increased significantly during the last twenty-five years (Jones et al., 1977). Although the resulting data have enhanced our knowledge of the distributions and the zoogeographical relationships of species, incomplete surveys exist for certain regions. The northern lowlands along the Caribbean coast of Honduras, Guatemala, Belize, and Quintana Roo, in Mexico, is one such region. Travel within this coastal versant has improved with agricultural and settlement expansion. The isolation of Belize from its neighbors has been reduced with the construction of roads in Guatemala's frontier of El Petén and Mexico's former territory of Quintana Roo. A paved road from Izabal now connects El Petén and Belize with the Pan-American Highway in western Guatemala. Road development continues within Belize for all-weather travel.

Belize is situated within the Caribbean lowland drainage of northern Central America. Contiguous with Belize on this eastern slope is the eastern portion of the department of El Petén to the west and, to the south, the department of Izabal, both of Guatemala. Southern Quintana Roo of peninsular Mexico borders to the north (see fig. 1 and Gazetteer). The topography of these Caribbean lowlands extends from the lower ranges (600 m and below) of the eastern Sierra de Chamá, the Sierras de las Minas, the Sierra de Santa Cruz, the Sierra del Meredón, and the Montañas del Mico in Alta Verapaz and Izabal, and the Maya Mountains of southern Belize and southeastern El Petén to the low undulating relief of southern Quintana Roo. The Maya Mountains represent a heavily eroded Paleozoic formation that now ranges at the top from 671 to 853 m in elevation, with the high-

est peak at 1113 m (Wright et al., 1959). Annual rainfall in portions of Izabal averages from 3,000 to nearly 5,000 mm (Portig, 1976). Over 4,500 mm of rainfall was reported from the most southern coastal area of Belize. North and northward of the Maya Mountains, rainfall decreases appreciably to less than 1,500 mm in north-central El Petén and northern Belize, where less than 1,400 mm was recorded near the Quintana Roo border (Walker, 1973). The severity of this northward reduction of rainfall is intensified by the increased lack of surface drainage into the Yucatán Peninsula of Mexico. Because the limestone shelf of northern Belize has geological affinities with the Yucatán Peninsula (Wright et al., 1959), the southern limit of this peninsula can be considered the fault line extending from north of the Maya Mountains westward through the northern shore of Lake Petén-Itzá, El Petén (Wadell, 1938; West, 1964). Effectively, the northern plain of Belize and northern El Petén are portions of the Yucatán Peninsula. The northward shift from alluvial soils to shallow calcareous soils, along with the mentioned climatic changes, create edaphic conditions that affect the composition and the structure of the vegetation that can be supported (Lundell, 1934, 1937; Standley & Record, 1936; Wright et al., 1959; Pennington & Sarukhan, 1968). The potential effect of this transitional physiography on the distribution and relative abundance of bats in this Caribbean lowland region will require further inventory studies.

This paper documents 30 new records for Belize. A checklist of the known bat fauna for this country is annotated in the Appendix. Sixty-six species are cited. Included here are also records from nearby localities for El Petén, Izabal, and Alta Verapaz, Guatemala, and Quintana Roo, Mexico. Nine species records from El Petén, five records from

Izabal, and two records from Alta Verapaz increase the number of reported species for these departments to 35, 31, and 40, respectively (see Jones, 1966; Carter et al., 1966; Rick, 1968; Smith, 1972; LaVal, 1973a; Martínez R., 1980; McCarthy, 1982). Jones et al. (1973) and Birney et al. (1974) summarized the records for 31 species from Quintana Roo, and this paper provides one additional record.

Materials and Methods

The bats that I collected during the years 1974–1984 in Belize and El Petén (Parque Nacional Tikal), Guatemala, were obtained principally with mist nets set at ground level; aerial netting and the use of a bat trap were limited. Unless otherwise stated, mist netting was carried out during the first half of the night. A limited number of specimens were obtained with hand nets or plastic funnel traps at roost sites. Specimens were prepared as standard museum skins with skulls and/or skeletons, or as fluid-preserved specimens. These vouchers are housed in Field Museum of Natural History, Chicago (FMNH); The Museum, Michigan State University, East Lansing (MSU); Carnegie Museum of Natural History, Pittsburgh (CM); and American Museum of Natural History, New York (AMNH).

A survey of 45 museum collections in the United States, Canada, Mexico, Guatemala, and England resulted in additional specimens from Belize, El Petén, Izabal, Alta Verapaz, and Quintana Roo. Pertinent specimens (147) have been included in this report from the following institutions [collectors in brackets]: American Museum of Natural History, New York [N. Sullivan]; British Museum (Natural History), London, England (BM) [R. H. L. Disney; P. Williams; A. M. Hutson; R. E. Stebbings]; Carnegie Museum of Natural History [N. A. Bitar]; Field Museum of Natural History [L. de la Torre]; Florida State Museum, University of Florida, Gainesville (FSM) [F. J. Bonaccorso]; Museum of Zoology, Louisiana State University, Baton Rouge (LSUMZ) [D. M. Lay]; Royal Ontario Museum, Toronto, Canada (ROM) [R. L. Peterson; J. Kamstra; J. Fragosol]; Texas Cooperative Wildlife Collections, Texas A&M University, College Station (TCWC) [D. C. Carter; M. D. Engstrom]; Texas Tech University, Lubbock (TTU) [P. Diamond]; and United States National

Museum of Natural History, Washington, D.C. (USNM) [E. L. Tyson].

Systematic arrangement of species accounts and nomenclature, unless otherwise indicated, follow Jones et al. (1977) and Handley (1980). Disney (1968) did not provide data for the first records of *Pteronotus davyi*, *Tonatia minuta*, and *Eptesicus furinalis* from Belize. Those data are presented in the respective accounts of this report, with additional records. Further secondary records from Belize of *Mimon crenulatum*, *Trachops cirrhosus*, *Glossophaga commissarisi*, *Vampyressa pusilla*, and *Eumops auripendulus* are also included. All of the species accounts are discussed in the context of their range and elevational distributions in Mexico and Central America. Hall (1981) was the primary reference for this unless cited otherwise.

Forest types in Belize follow Wright et al. (1959), whose classification was partially based on the seasonal formation series (Beard, 1944), which refers to structural appearance. The correct political alignments between the states of the Yucatán Peninsula are inconsistent among a number of published maps. The state boundary between Quintana Roo and Campeche on the map in Figure 1 (see also Gazetteer) is based on a number of Government of Mexico (Secretaría de Programación y Presupuesto) maps, including “Carta Topográfica, Mérida” (1:1,000,000; 1979 and 1983) and “Mapa Geográfica” (1:5,000,000; 1980).

Species Accounts

Family EMBALLONURIDAE

Subfamily EMBALLONURINAE

Saccopteryx leptura (Schreber, 1774)

SPECIMEN EXAMINED—**BELIZE**. Toledo: 2.1 km NNE Salamanca Camp, Columbia Forest, 1 ♀ (CM).

The known distribution of this small sac-winged bat north of Panama extends through Costa Rica and Nicaragua to Chiapas along the Pacific versant. The presence of predominantly lowland *Saccopteryx leptura* in southern Belize represents a country record and an extension of its distribution along the Caribbean side from southeastern Nicaragua.

Small bats were observed foraging up to heights of 13–13.5 m during the twilight period of the evening. Flight appeared to be concentrated within

a small, open area below the lower canopy of evergreen seasonal forest. A short mist net was hand-hoisted to capture (24 March) this adult specimen. *Saccopteryx bilineata* was collected shortly after the capture of *S. leptura*.

Balantiopteryx io Thomas, 1904

SPECIMENS EXAMINED—GUATEMALA. El Petén: Poptún, Finca Ixobel, 18 ♂♂, 18 ♀♀ (CM).

The restricted distribution of *Balantiopteryx io* ranges from the Gulf lowlands of Veracruz, Oaxaca, and Tabasco to the lowlands of Belize and eastern Guatemala. Kirkpatrick et al. (1975), Cartwright and Kirkpatrick (1977), and Sanborn (1936) represent the previous records for Belize and Izabal. The Poptún locality represents the first record for El Petén.

The specimens reported here were collected (12 June) by N. A. Bitar as they exited from a cave surrounded by secondary forest. The distribution of this colonial species may be restricted in part by the availability of adequate cave habitats as roosting sites.

Subfamily DICLIDURINAE

Diclidurus virgo Thomas, 1903

SPECIMEN EXAMINED—BELIZE. Cayo: 1.5 km SSW Roaring Creek, 1 ♂ (FMNH).

The white bat is represented by relatively few localities in Middle America, which extend from western (Nayarit) and eastern (southern Veracruz) Mexico through Central America. Specimens from southwestern El Petén were reported by Jones (1966). The single specimen from Belize represents a northward range extension in the Caribbean lowlands from northwest Honduras (Carter & Dolan, 1978) and a record for the country.

The single bat apparently was roosting on the trunk of a fig tree (*Ficus insipida*) overhanging a pool along the Roaring Creek River. It was captured (May) by C. Tzul after being observed on a number of occasions roosting near, but not among, a group of *Rhynchonycteris naso*. Jones (1966), Starrett and Casebeer (1968), and Handley (1976) commented on the high foraging habits of *Diclidurus*. Similar to the molossid bats, *Diclidurus* probably concentrates its foraging efforts at levels well above the tree canopy and beyond the reach of conventional collecting techniques, except fire-

arms. This may explain why there are few specimens available in collections.

Goodwin (1969) considered *Diclidurus virgo* at best not more than subspecifically different from *D. albus*. Both species were recognized by Ojasti and Linares (1971), who questioned Goodwin (1969) because they believed that his South American comparative material represented *D. virgo* and not *D. albus*.

Family NOCTILIONIDAE

Noctilio leporinus mastivus (Vahl, 1797)

SPECIMENS EXAMINED—BELIZE. Cayo: Banana Bank, 1 ♂, 1 ♀ (FMNH); Barton Creek, at Western Hwy., 1 ♀ (FMNH). Stann Creek: Melinda, Stann Creek River, 1 ♂ (FMNH). Toledo: 1.2 km E Aguacate, Aguacate River, 2 ♂♂ (CM), 1 ♀ (BM); Big Fall, vicinity Río Grande Bridge, 1 ♀ (FMNH); Salamanca Camp, 1 ♀ (BM).

The fishing bat occurs along the riparian habitats of river systems, inland lakes, and coastlines in primarily lowland regions from northwestern (northern Sinaloa), eastern (southern Veracruz), and peninsular (Yucatán) Mexico throughout Central America (Davis, 1973; Hellebuyck et al., 1985). Dickerman et al. (1981) reported a locality for *Noctilio leporinus* from Alta Verapaz as in the Caribbean drainage when it was clearly in the Río Usamacinta drainage of the Gulf lowlands. The Belizean localities extend northward the recorded occurrence of *N. leporinus* from Izabal and northwestern Honduras (Carter et al., 1966).

All of the specimens were obtained (March, April, May, July, August) over rivers and a pond except for one individual, which was mist netted (28 August) low over a pasture adjacent to a flooded river. This bat was foraging primarily for insects since its feces contained the chitinous remains of these prey. Additional fishing bats from the localities in Cayo and Stann Creek districts were captured, banded, and released. This bat was common along the South Stann Creek drainage, Cockscomb Basin. A specimen belonging to M. Craig, Belize Audubon Society, was collected at Indian Church (Lamanai), New River Lagoon, Orange Walk District. An old specimen of *N. leporinus* in the collections of British Museum (Natural History) was registered in 1909 without pertinent field data. The two peninsular records from Campeche (Jones et al., 1973) and Yucatán (Birney et al., 1974) were obtained in coastline habitat along the

Gulf of Mexico. Although subsurface drainage predominates north of Belize into Quintana Roo, shallow inland "lagunas" are fairly common and probably support *Noctilio* populations.

Family MORMOOPIDAE

Pteronotus davyi fulvus (Thomas, 1892)

SPECIMENS EXAMINED—**BELIZE.** **Cayo:** Central Farm, 1 ♂ (CM), 1 ♂ (FMNH); Ontario, 5.5 km W Teakettle, 1 ♂ (FMNH); Unitedville, 9 km WSW Teakettle, 1 ♂ (FMNH). **Orange Walk:** Tower Hill, B.S.I. compound, 3 ♀♀ (FMNH). **Toledo:** Aguacate, 1 ♂ (CM); 1.2 km E Aguacate, 1 ♂ (BM), 1 ♂ (CM); Rice Station, 2 ♂♂ (FMNH); 0.4 km W Rice Station, 1 ♂ (FMNH); San Antonio, 1 ♂ (FMNH). **GUATEMALA.** **El Petén:** Parque Nacional Tikal, 1 ♂ (MSU).

Smith (1972) summarized the majority of the capture localities for this subspecies of naked-backed bat, which ranges from northwestern (Sonora), northeastern (Tamaulipas), and peninsular (Yucatán) Mexico southeastward to Honduras and El Salvador, but omitted the only record for Belize (Disney, 1968). Parque Nacional Tikal is the first record for El Petén, and the Belizean specimens provide additional records for Belize.

Disney (1968) did not present data for his single *Pteronotus davyi* specimen. This male was obtained (1 November) in Cayo District, at Listowel along the Belize River, and is housed in British Museum (Natural History). The subsequent specimens reported here were collected (October–December, May, July, August) in open areas, bordering on vegetation and buildings, and over water. The specimen from El Petén was captured (25 March) along a trail in upland deciduous forest. An additional *P. davyi* from Tikal was captured, banded, and released.

Pteronotus personatus psilotis (Dobson, 1878)

SPECIMENS EXAMINED—**BELIZE.** **Toledo:** 1.2 km E Aguacate, Aguacate River, 1 ♀ (BM), 4 ♂♂, 1 ♀ (CM); Big Fall, 1.5 km WSW Río Grande Bridge, 1 ♂ (FMNH); 0.8 km NW Blue Creek, 1 ♀ (FSM); Crique Jute, 1 ♂ (FMNH); Crique Lagarto, 1 km NW San Antonio, 1 ♀ (FMNH); Jacinto Creek, at Punta Gorda Road, 1 ♂ (MSU); 0.4 km W Rice Station, 1 ♀ (FMNH); Salamanca Camp, 1 ♀ (USNM); San Antonio, 1 ♀ (FMNH); 0.9 km WNW San Pedro Columbia, 1 ♀ (FMNH).

The distribution of *Pteronotus personatus psilotis* extends from western (southern Sinaloa) and eastern (Tamaulipas) Mexico southeastward to Honduras and El Salvador (Smith, 1972), with Caribbean lowland localities in Campeche (Jones et al., 1973), El Petén (Jones, 1966), and Alta Verapaz (Jones, 1966). Elevations range from 123 to 984 m. These localities from southern Belize are the first records for the country.

Fifty-three percent of the small moustache bats were collected (March, May, July) over open water; the remainder were foraging (January, April, August, December) in open areas adjacent to buildings or corralled cattle.

Mormoops megalophylla megalophylla Peters, 1864

SPECIMENS EXAMINED—**BELIZE.** **Belize:** 6.6 km N Churchyard, 1 ♀ (CM). **Cayo:** 1.6 km NW Augustine, Río Frío, 1 ♂ (TTU). **Stann Creek:** Melinda, 1 ♂ (FMNH). **Toledo:** Forest Home, 1 ♂ (MSU); Pueblo Viejo, 1 ♂ (FMNH). **GUATEMALA.** **Izabal:** 25 km SSW Puerto Barrios, 1 ♂ (TCWC).

The leaf-chinned bat has been reported throughout Mexico, Guatemala, El Salvador, and Honduras (Smith, 1972). Davis and Carter (1962), Jones (1966), and Taibel (1977) provided lowland records for El Petén and Alta Verapaz. Elevations range from near sea level to 2270 m. These localities are the first records for Belize and Izabal.

Except for one Belizean specimen, which was captured (9 June) in a cave, these leaf-chinned bats were associated (March, April, December) with open areas bordering on forest or orchard edges, including pine savanna. One *Mormoops* specimen, which was registered into the British Museum (Natural History) collections in 1892, may have been obtained in the vicinity of Belize City. The Guatemalan specimen was collected by D. C. Carter.

Family PHYLLOSTOMIDAE

Subfamily PHYLLOSTOMINAE

Micronycteris brachyotis (Dobson, 1878)

SPECIMENS EXAMINED—**BELIZE.** **Cayo:** 1 km NW Augustine, 2 ♂♂ (FMNH). **Toledo:** Crique Negro, Columbia Forest, 1 ♂ (BM).

The first Middle American specimen of *Micro-*

nycteris brachyotis was initially reported from Nicaragua as *M. sylvestris* by Goodwin (1946), but was correctly identified by Sanborn (1949). Subsequent records are from the Gulf-Caribbean lowlands of southern Veracruz (Medellín L. et al., 1983), Oaxaca (Schaldach, 1964), Chiapas (Davis et al., 1964), and El Petén (Jones, 1966; Rick, 1968; McCarthy, 1982); and the Pacific-Caribbean versants of Costa Rica (Howell & Burch, 1974; Starrett, 1976; LaVal & Fitch, 1977) and Panama (Handley, 1966; Fleming et al., 1972; Bonaccorso, 1979). Reported elevations range from 40 to 594 m. The present specimens are the first records of the yellow-throated bat for Belize.

Two specimens were captured (29 July) as they exited from a cave into a low deciduous seasonal forest, and a third bat was taken (28 May) along a path in an evergreen seasonal forest. The two specimens from Cayo, which I obtained while assisting a histoplasmosis survey, were listed as "*M. bardyotis*" in a preliminary report (Quinones et al., 1978, p. 559) and no specific locality data were provided.

***Micronycteris megalotis mexicana* Miller, 1898**

SPECIMENS EXAMINED—BELIZE. **Corozal:** San Antonio, 2 km NW Corozal, 1 ♂ (FMNH). **Orange Walk:** San Antonio, Río Hondo, 2 ♂♂, 1 ♀ (FMNH). **Toledo:** Aguacate, 1 ♂ (CM); Big Fall, 2 km E Río Grande Bridge, 1 ♀ (BM); Cuevas Creek Bridge, 10 km NW Punta Gorda, 1 ♂, 1 ♀ (BM), 1 ♂ (AMNH), 1 ♀ (MSU); Nimli Punit, 1 ♀ (CM); Rocky Run Ranch, 4.8 km NW Punta Gorda, 1 ♂, 1 ♀ (BM); Unión Camp, 2 ♀♀ (BM); Vista Hermosa Ranch, 3.7 km WNW Punta Gorda, 1 ♀ (CM). **GUATEMALA.** **El Petén:** Parque Nacional Tikal, 1 ♂ (FMNH).

The distribution of this subspecies of big-eared bat extends from western (Jalisco), eastern (southern Tamaulipas), and peninsular (Yucatán) Mexico, along the Pacific coastal and highland regions, to Costa Rica. Gardner et al. (1970) suggested that the southern extent of *Micronycteris megalotis mexicana* is in the Cordillera Talamanca of Costa Rica. This species has been recorded most often at lowland-moderate elevations, up to 2870 m. Specimens from Isla Cozumel, Quintana Roo, represent the only record for Quintana Roo (Jones et al., 1973). The records of *M. m. mexicana* which are reported here are the first for Belize and El Petén.

Belizean specimens were obtained (May, July, August, November) in diurnal roost sites (shallow

caves and limestone chambers, bridge approachments, abandoned rum factory boiler) and collected in forest habitats (riparian marsh, evergreen and semi-evergreen, deciduous semi-evergreen, and deciduous seasonal). The Tikal specimen was captured (6 June) roosting in a passageway of an excavation tunnel within a ruin complex. A second juvenile male was captured, banded, and released (29 July) in escobal palm (*Cryosophila argentea*) forest, 1.9 km SE Tikal Reservoir.

***Micronycteris nicefori* Sanborn, 1949**

SPECIMEN EXAMINED—BELIZE. **Toledo:** 0.4 km NE Aguacate, 1 ♀ (FMNH).

Handley (1966) documented the first specimens of *Micronycteris nicefori* north of South America, from Panama. Subsequently, it has been reported from southeastern Nicaragua (Baker & Jones, 1975) and both the dry Pacific (Starrett, 1976) and wet Caribbean (LaVal, 1977) lowlands of Costa Rica. These Central American localities range from near sea level to over 100 m. This first record from Belize also represents a significant Central American range extension along the Caribbean versant.

The *M. nicefori* specimen reported here was mist netted on 15 December along a track in hilltop, evergreen seasonal forest.

***Micronycteris schmidtorum* Sanborn, 1935**

SPECIMENS EXAMINED—BELIZE. **Corozal:** Pat-chakan, 2 ♀♀ (FMNH). **Orange Walk:** 1.3 km W San Antonio, Río Hondo, 1 ♂ (FMNH). **Toledo:** Big Fall, 1 km E Río Grande Bridge, 1 ♂ (CM).

Micronycteris schmidtorum was described (Sanborn, 1935) from specimens collected in the Caribbean lowlands of Izabal. An additional Guatemalan specimen was recorded in the Pacific piedmont (Dickerman et al., 1981). The remaining Central American records represent both the Pacific and Caribbean lowland slopes from Honduras (Sanborn, 1941), Nicaragua (Davis et al., 1964; Baker & Jones, 1975), Costa Rica (Starrett & Casebeer, 1968; Fleming et al., 1972; Howell & Burch, 1974; LaVal & Fitch, 1977), and Panama (Handley, 1966). Specimens from Yucatán assigned to *M. schmidtorum* by Villa-R. (1966) were reidentified as *M. megalotis* by Jones et al. (1973). An identification of *M. schmidtorum* (Jones et al., 1973) for a specimen from Isla Cozumel, Quintana Roo, was questioned by Hall (1981) because this

specimen previously was identified as *M. megalotis* (Jones & Lawlor, 1965). I examined this specimen (University of Kansas 91539) and agree that it is *M. schmidtorum*. The northern distribution of this big-eared bat extends to the Caribbean coast of the Yucatán Peninsula. The specimens reported here are the first records for Belize.

At Parque Nacional Tikal, one juvenile and two adult females, which were captured (30 July) in a hollow tree (*Bursera semirouba*) of an upland deciduous seasonal forest, were photographed, banded, and released. This site was revisited during the following March, but no *Micronycteris* were found. These individuals of *M. schmidtorum* were the first seen in El Petén. Similarly, Sanborn (1935) and Starrett and Casebeer (1968) reported individuals from tree hollows. The Belizean specimens were captured (February, September, November) in the orchard vegetation of a village, along a secondary forest edge, and in riparian secondary vegetation.

***Lonchorhina aurita aurita* Tomes, 1863**

SPECIMENS EXAMINED—BELIZE. Stann Creek: 5.3 km WNW Quam Bank, Cockscomb Basin, 1 ♀ (CM). Toledo: 0.8 km NW Blue Creek, 1 ♂, 1 ♀ (AMNH); Crique Jute Village, 1 ♀ (CM); Crique Negro, Columbia Forest, 1 ♂ (BM), 1 ♂ (USNM); 2.1 km NNE Salamanca Camp, Columbia Forest, 3 ♂♂ (CM). **GUATEMALA.** El Petén: Poptún, Finca Ixobel, 2 ♂♂ (CM).

Lonchorhina aurita was first recorded in Middle America from Panama (Miller, 1912). Subsequent collecting has found this cave-dwelling bat northward through Central America to southeastern (southern Veracruz, Oaxaca, Tabasco) and peninsular (Quintana Roo) Mexico. Predominately lowland, this distinctive leaf-nosed bat extends up to more than 1500 m in representative habitats. Jones et al. (1973) reported the only record from Quintana Roo, while specimens from Izabal (Sanborn, 1936) are apparently the next Caribbean versant record north of eastern Costa Rica (Nelson, 1965); records from Nicaragua and Honduras are lacking. The specimens examined for this account are the first records from Belize and El Petén.

All specimens from Belize were captured (March, April, May, August) in deciduous seasonal and evergreen seasonal forests. The Guatemalan bats were captured by N. A. Bitar as they exited from the cave discussed in the *Balantiopteryx io* account.

***Macrophyllum macrophyllum* (Shinz, 1821)**

SPECIMENS EXAMINED—BELIZE. Cayo: Sibun River at Indian Creek, 1 ♂ (FMNH). Toledo: Big Fall, 1.7 km NE Río Grande Bridge, 1 ♀ (CM).

Tabasco, Mexico, represents the northernmost occurrence for the long-legged bat, which is known from both the Caribbean and Pacific regions of Central America. Primarily a lowland inhabitant, *Macrophyllum macrophyllum* ranges from 40 to almost 600 m. These specimens represent a Caribbean lowlands range extension from northwestern Honduras (Valdez & LaVal, 1971) and the first records for Belize.

Harrison and Pendleton (1974), Gardner (1977), and Dickerman et al. (1981) indicated that long-legged bats may be closely associated with aquatic habitats. Similarly, the Belizean specimens were obtained (17 March, 1 April) from along the Sibun River, although not directly above water, and over the surface of the Río Grande. The first bat was taken at approximately 0340 in a stand of shade trees, dominated by cohune palms (*Orbignya cohune*), at the edge of an open pasture.

***Tonatia bidens bidens* (Spix, 1823)**

SPECIMENS EXAMINED—BELIZE. Cayo: Río Frío, 1.6 km W Augustine, 1 ♀ (CM). Toledo: Nimli Punit, 1 ♂ (CM); Orange Creek, 1.5 km SW Punta Gorda, 1 ♂ (MSU); 2.1 km NNE Salamanca Camp, Columbia Forest, 1 ♂ (CM); 2.2 km NNE Salamanca Camp, Columbia Forest, 1 ♀ (CM).

Goodwin (1946) first recorded *Tonatia bidens* in Central America from the Pacific lowlands of Costa Rica. Other humid lowland records include both the Caribbean and Pacific versants of Panama, continuing along the Caribbean corridor of Nicaragua, Honduras, and Guatemala. The northernmost record is from eastern Chiapas (Medellín L., 1983). The Guatemalan records are from the Caribbean lowlands of El Petén (McCarthy, 1982) and Izabal (Carter et al., 1966). Elevations range from near sea level to around 660 m. The present specimens constitute the first records from Belize.

Four adult males were taken (March, April) over a creek in a low transitional forest, in a high evergreen seasonal forest, and in a deciduous seasonal forest. A subadult male was captured (24 September) in the courtyard of a Mayan archaeological site located in a high deciduous seasonal forest.

***Tonatia evotis* Davis and Carter, 1978**

SPECIMEN EXAMINED—GUATEMALA. El Petén: Parque Nacional Tikal, 1 ♂ (FMNH).

Davis and Carter (1978) described *Tonatia evotis* on the basis of its smaller size in comparison to *T. sylvicola*; a female from Izabal was designated as the holotype. El Petén is part of a Gulf-Caribbean distribution which extends from southern Veracruz, Tabasco, Chiapas, and Campeche to Belize, and continues along northern Honduras (Davis & Carter, 1978). Martínez R. (1980) recorded an additional eastern Guatemalan locality in Alta Verapaz. All recorded elevations are less than 100 m. The *T. evotis* from Tikal represents the first record for El Petén.

Two adult males and one pregnant female were mist netted (20 February, 29 and 25 March) in Tikal along the Uxactún Road, at a permanent water pool in escobal palm forest, and in an upland deciduous seasonal forest. One male and the female were banded and released.

***Tonatia minuta* Goodwin, 1942**

SPECIMENS EXAMINED—BELIZE. Cayo: 1.1 km W Augustine, 1 ♀ (FMNH); Central Farm, at Belize River, 1 ♀ (FMNH); 1.2 km E Macaw Bank, 1 ♀ (FMNH). Toledo: Big Fall, 1.7 km NE Río Grande Bridge, 1 ♀ (MSU); San Lucas, 1 ♀ (MSU).

This small *Tonatia* was originally described from the Caribbean coast of Nicaragua as *T. nicaraguae* (Goodwin, 1942a). Its Middle American distribution is lowland (15 to 610 m) along Caribbean and Pacific versants, from southern Veracruz (Lackey, 1970) to El Petén, Guatemala (McCarthy, 1982) and Belize (Disney, 1968), continuing through Honduras (LaVal, 1969; Valdez & LaVal, 1971; Greenbaum & Jones, 1978), Nicaragua (Jones et al., 1971; Greenbaum & Jones, 1978), and Costa Rica (Gardner et al., 1970; LaVal, 1977), to Panama (Davis et al., 1964; Handley, 1966). This account represents additional records for the small round-eared bat in Belize.

Disney (1968) reported no data for the first *Tonatia minuta* specimen from Belize, which was a female collected (25 November) in Cayo District, at Listowel, along the Belize River. This specimen was deposited in British Museum (Natural History). The additional specimens reported here were captured (November, January, February, April, May) over rivers or in a deciduous seasonal forest.

The name *minuta* is applied in accordance with

the discussion by McCarthy (1982). Gardner (1976) referred to a personal communication with C. O. Handley, Jr., who suggested that all small *Tonatia* (including *minuta*) represent a single species, *T. brasiliense*. Because the taxonomy is poorly understood, a systematic review of this group would be useful.

***Mimon cozumelae* Goldman, 1914**

SPECIMENS EXAMINED—BELIZE. Belize: Churchyard, Sibun River, 1 ♀ (FMNH). Cayo: "Mountain Pine Ridge", 2 ♂♂, 1 ♀ (BM); 0.8 km W Augustine, 1 ♂ (CM); 1 km NW Augustine, 2 ♂♂ (FMNH); Barton Creek, at Western Hwy., 2 ♂♂, 3 ♀♀ (FMNH). Toledo: vicinity Aguacate, 2 ♂♂, 2 ♀♀ (CM), 1 ♂ (FMNH); Crique Negro, Columbia Forest, 1 ♀ (BM); Pueblo Viejo, 1 ♂, 1 ♀ (FMNH); 2.1 km NNE Salamanca Camp, Columbia Forest, 2 ♂♂ (CM); 2.2 km NNE Salamanca Camp, Columbia Forest, 1 ♂ (CM); vicinity Unión Camp, 2 ♂♂, 1 ♀ (BM), 2 ♀♀ (CM).

This spear-nosed bat ranges from southeastern (northern Oaxaca, southern Veracruz) and peninsular (Yucatán, Quintana Roo) Mexico south-eastward along the humid Caribbean side of Central America. Specimens from Isla Cozumel, Quintana Roo, provided the original description for this species (Goldman, 1914). Recorded elevations extend to 495 m. The Belizean localities reported here are the first records for the country.

Mimon cozumelae were collected (January, March, May, July, August, September, December) along the edge of deciduous and semi-evergreen seasonal forests bordered with pasture, on riparian flood plains, over rivers, along paths in high deciduous, semi-evergreen seasonal forests, and in caves.

Schaldach (1964), Villa-R. (1966), and Hall (1981) considered *cozumelae* a subspecies of *bennettii*. I tentatively accept *cozumelae* at the specific level.

***Mimon crenulatum keenani* Handley, 1960**

SPECIMENS EXAMINED—BELIZE. Cayo: Listowel, Baking Pot, 1 ♂ (FMNH). Toledo: Crique Negro, Columbia Forest, 1 ♂ (USNM).

There are few records for *Mimon crenulatum keenani* from Middle America. The distribution of this distinctive spear-nosed bat extends along the Caribbean versant, from Panama (Handley,

1966; Bonaccorso, 1979), Costa Rica (Gardner et al., 1970; LaVal, 1977), Nicaragua (Greenbaum & Jones, 1978), Belize (Ruiz, 1983), El Petén (McCarthy, 1982), and Campeche (Jones, 1964) to the Gulf lowlands of eastern Chiapas (Medellín L., 1983). All recorded elevations range below 265 m. These specimens are the second and third records from Belize. The first record (Ruiz, 1983) was obtained near Blue Hole, 14 km SE Belmopan, Cayo District.

One *Mimon crenulatum* was captured (8 October) in a house after it flew through an open window. The house was situated along the Belize River in an agricultural area. The second specimen was netted (29 March) along a path in evergreen seasonal forest. E. L. Tyson collected the specimen from Toledo District.

***Phyllostomus discolor verrucosus* Elliot, 1905**

SPECIMENS EXAMINED—BELIZE. Toledo: Crique Lagarto, 1 km NW San Antonio, 1 ♂ (FMNH); 1 km NNE Salamanca Camp, Columbia Forest, 1 ♂ (CM). **GUATEMALA.** Alta Verapaz: Lanquin, Lanquin Cave, approx. 149 km WSW Puerto Barrios, 1 ♂, 1 ♀ (FMNH).

Records of *Phyllostomus discolor* extend from southern (Oaxaca, Veracruz) Mexico along both the Pacific and Caribbean corridors of Central America. Records are more common at lower elevations, less than 600 m. The new records from southern Belize provide a limited range extension northward from eastern Izabal (Sanborn, 1936).

An adult from Crique Lagarto was captured (1 January) along the edge of low secondary forest bordering this settlement. The head of the bat was covered with yellow pollen. The second specimen was netted (21 March) in secondary vegetation, which resulted from slash-burn agriculture. Whitish pollen dusted the face, chest, and ventral wing surfaces. A male subadult *Phyllostomus discolor* that was taken (13 July) along a fenceline of secondary vegetation between two pastures, 1.9 km ENE Río Grande Bridge, Big Fall, Toledo District, was photographed, banded, and released. L. de la Torre apparently captured (3 June) the two *Phyllostomus* from Alta Verapaz inside the entrance of Lanquin Cave.

I tentatively follow Jones et al. (1977) in assigning the specimens of *Phyllostomus discolor* from the Caribbean lowlands to the subspecies *verrucosus*. Sanborn (1936, p. 98) recognized *verrucosus* subspecifically, stating the “available mea-

surements of *discolor* would place them much closer to *verrucosus*.” He suggested the Panamanian *P. d. discolor* are assignable to *verrucosus* based on larger size. Felten (1956) and Burt and Stirton (1961) concurred with his statement by referring a large series from El Salvador to *verrucosus*; with the availability of greater series of specimens, Davis and Carter (1962) indicated they could not recognize two subspecies of *P. discolor* in Central America and northern South America, acknowledging only *P. d. verrucosus*. Handley (1966) apparently disagreed as he recognized the subspecies *discolor* in Panama. Multivariate analysis of morphological data (Power & Tamsitt, 1973) suggested this species might be monotypic.

Phylloderma stenops septentrionalis

Goodwin, 1940

SPECIMENS EXAMINED—BELIZE. Toledo: Crique Negro, Columbia Forest, 1 ♀ (USNM); 2.1 km NNE Salamanca Camp, Columbia Forest, 2 ♂♂ (CM).

This rarely encountered species has been recorded north of Panama from the Caribbean coast of Costa Rica (LaVal, 1977), the highlands of Honduras (Goodwin, 1940), the Caribbean lowlands of Guatemala (McCarthy, 1982), and the Gulf lowlands of Chiapas (Carter et al., 1966). Limited elevational data are from lowland to approximately 1320 m. The specimens of *Phylloderma stenops* from Belize represent the eighth, ninth, and tenth specimens north of Panama and the first records from Belize.

All specimens were mist netted (March, December) in similar evergreen seasonal forest habitats. E. L. Tyson collected the specimen from Crique Negro.

Handley (1966) regarded the Panamanian specimens to be *Phylloderma stenops stenops*, and those from northward into Middle America were thought to be subspecifically different from the nominal species. LaVal (1977) did not designate a subspecies for his Costa Rican specimen.

***Trachops cirrhosus coffini* Goldman, 1925**

SPECIMENS EXAMINED—BELIZE. Orange Walk: Richmond Hill (Goat Hill), 8.9 km SSW Orange Walk Town, 1 ♂, 1 ♀ (CM). Toledo: 2.2 km NNE Salamanca Camp, Columbia Forest, 1 ♂ (CM).

GUATEMALA. Izabal: 25 km SSW Puerto Barrios, 1 ♂ (TCWC).

This lowland subspecies of the fringe-lipped bat is recognized from eastern (southern Veracruz) and southeastern (eastern Oaxaca) Mexico southeastward to Nicaragua. Recorded elevations are from near sea level to approximately 330 m. Jones (1966), Rick (1968), and McCarthy (1982) provided records for El Petén. The description of this subspecies was based on specimens from eastern El Petén (Goldman, 1925). The first Belizean records were reported from Belize District in the vicinity of Belize City (Sanborn, 1941) and Rockstone Pond (Pendergast, 1979). The specimen from Izabal is the first record for that Guatemalan department.

D. C. Carter obtained the single specimen from Izabal on 19 February. The additional Belizean specimens were mist netted (March, April) in deciduous marsh and evergreen forests.

***Chrotopterus auritus* (Peters, 1856)**

SPECIMENS EXAMINED—BELIZE. Toledo: vicinity Crique Negro, Columbia Forest, 1 ♀ (FMNH); 1.6 km NNE Salamanca Camp, Columbia Forest, 1 ♀ (FMNH).

Chrotopterus was first reported in Central America from El Salvador (Burt & Stirton, 1961). Subsequently, this carnivorous bat has been recorded from southern (southern Veracruz, northern Oaxaca, Chiapas) and peninsular (Yucatán, Quintana Roo) Mexico southeastward throughout Central America at lowland and upland elevations (40 to over 1880 m). *Chrotopterus auritus* has been reported from Quintana Roo (Jones et al., 1973) and El Petén (Rick, 1968; McCarthy, 1982). These specimens from southern Belize provide the first records for the country.

The Belizean specimens were netted (10 April, 28 July) in an evergreen seasonal forest at ground level along a path and at a height of about 13.7 m over an intermittent stream bed. Both were active during the morning hours, 0418 and 0330, respectively.

The subspecific name *Chrotopterus auritus auritus* has been applied to Middle American populations (Jones et al., 1971). Carter and Dolan (1978) stated the type specimen for *Vampyrus auritus* Peters, 1856, actually was collected in Santa Catarina, Brazil, not in Mexico. The discussion by Carter and Dolan (1978, p. 37) suggested that Pe-

ters based his description on one or more specimens from Brazil and compared these with a specimen from an unrecorded locality in Mexico as the "verwandten Art aus Mexico." Handley (1966) doubted that subspecies were recognizable.

***Vampyrus spectrum* (Linnaeus, 1758)**

SPECIMEN EXAMINED—BELIZE. Toledo: Santa Elena, 1 ♂ (FMNH).

Two localities in southern Veracruz, Mexico (Goldman, 1917; Navarro L., 1979) are the northwesternmost records of the false vampire bat's Middle American distribution, which continues in Nicaragua (Dobson, 1878; Allen, 1910), Costa Rica (Casebeer et al., 1963; Armstrong, 1969; Gardner et al., 1970; Howell & Burch, 1974; Vehrencamp et al., 1977; LaVal & Fitch, 1977), and Panama (Handley, 1966; Peterson & Kirmse, 1969; Bonaccorso, 1979). Although primarily lowland in distribution, its highest recorded elevation was about 1815 m. The occurrence of *Vampyrus spectrum* in the Caribbean lowlands of Belize is documented by this specimen.

There appears to be no definite record of this carnivorous bat from Guatemala (Jones, 1966). Dobson (1878, p. 471) recorded "Guatemala" as part of the Central American range for *Vampyrus*, but did not list any examined specimens. Alston (1879–1882, p. 39) stated Dobson (pers. comm.) saw specimens from Guatemala, although Alston realized the collector, O. Salvin, had not obtained specimens of *Vampyrus*; hence, the identification of this species is doubtful. Five false vampire bats were mist netted on three separate dates in Parque Nacional Tikal, El Petén. Two females were captured during the dry season (22 and 24 March) in an upland deciduous seasonal forest, in the vicinity of Central Plaza of the archaeological site, and at a permanent water pool in escobal palm forest, 2.6 km SE Central Plaza. Two females and one male were netted during the wet season (22 July) at a location along an archaeological transect in escobal palm forest, 1 km SE Tikal Reservoir. All of these bats were released after being observed, measured, and/or photographed. These individuals provide the first record for Guatemala and, along with the specimen from Belize, bridge an intermittent distribution that now extends northward toward peninsular Mexico.

The *Vampyrus spectrum* from Belize was captured (8 April) during the early morning (0300) in

an open field. We were "trapping" *Desmodus rotundus* during a vampire bat control effort in the village. This large bat was captured after it made a number of low passes over horses and mules, which were encircled by mist nets. The bat died while enroute to captivity via an assistant.

The Central American population of *Vampyrum* was described as a distinct subspecies, *V. s. nelsoni* (Goldman, 1914), but Handley (1966) argued that the species was monotypic.

Subfamily GLOSSOPHAGINAE

Glossophaga commissarisi commissarisi Gardner, 1962

SPECIMENS EXAMINED—BELIZE. Belize: Rockstone Pond, 2 ♂♂, 3 ♀♀ (ROM). Toledo: Aguacate, 1 ♀ (FMNH), 1 ♀ (CM); Big Fall, 1 km SE Río Grande Bridge, 2 ♂♂ (CM); Forest Home, 1 ♀ (FMNH); 2.8 km NNW Punta Gorda, 1 ♀ (FMNH). **GUATEMALA.** Izabal: 25 km SSW Puerto Barrios, 7 ♂♂, 6 ♀♀ (TCWC).

Webster and Jones (1982) summarized the distribution for this subspecies of nectivorous bat, which was documented from eastern (Veracruz) and southern (Oaxaca, Chiapas) Mexico and southern Belize southeastward throughout Central America. Hellebuyck et al. (1985) recently reported records from El Salvador. The specimens from Izabal are the first records from this Guatemalan department. The specimens from Belize District extend northward the distribution of *Glossophaga commissarisi* along the Caribbean lowlands.

According to D. C. Carter's field notes, the majority of the Guatemalan *Glossophaga commissarisi* were mist netted (February, March) over a stream and in the adjacent undisturbed forest. Many of these nectivorous bats were captured in association with night-blooming "bat flowers" bordering on a stream. The Belizean specimens reported (Webster & Jones, 1982) from Lubaantun, Toledo District, were collected (18 April) in a disturbed semi-evergreen seasonal forest. Additional specimens were secured (January, July, September, December) in secondary and orchard vegetation of villages, in riparian secondary vegetation, and from the hollow of a mamey tree (*Pouteria mammosa*).

Subfamily STENODERMATINAE

Uroderma bilobatum molaris Davis, 1968

SPECIMEN EXAMINED—MEXICO. Quintana Roo: 2 km N, 8 km W Bacalar, 1 ♂ (TCWC).

Davis (1968) recognized this subspecies of the tent-making bat from the Gulf-Caribbean versant of southern Veracruz, Tabasco, northeast Oaxaca, northern Chiapas, Belize, Honduras, Nicaragua, Costa Rica, and northwest Panama. Disney (1968) and Pendergast (1979) also reported the occurrence of *Uroderma bilobatum* from Belize. The specimen reported here represents the first record for Quintana Roo and a marginal range extension into the Mexican peninsula of Yucatán.

The above specimen was taken in a net on 6 August by M. D. Engstrom along a path leading to an inland lagoon.

Vampyrops helleri helleri Peters, 1866

SPECIMENS EXAMINED—BELIZE. Cayo: Banana Bank, 5 ♀♀ (FMNH); 0.8 km W Macaw Bank, 1 ♂ (FMNH). Toledo: Big Fall, 1.9 km ENE Río Grande Bridge, 1 ♀ (AMNH), 1 ♀ (CM), 1 ♂ (MSU); Crique Negro, Columbia Forest, 1 ♂ (BM); Forest Home, 1 ♂ (FMNH), 1 ♂ (MSU); Salamanca Camp, 1 ♂ (BM), 1 ♂ (FMNH), 1 ♀ (USNM); 1.8 km NNE Salamanca Camp, Columbia Forest, 1 ♀ (FMNH); vicinity Unión Camp, 1 ♀ (BM), 2 ♀♀ (CM).

The Middle American records of this fruit bat indicate a distribution from sea level to elevations of over 1300 m and a range from southeastern Mexico (southern Veracruz, Oaxaca, Tabasco) throughout Central America. Lowland records have been reported from El Petén (Rick, 1968) and Izabal (Carter et al., 1966). This account constitutes the first records from Belize.

Eighty-seven percent of the *Vampyrops helleri* specimens were captured along or in proximity to waterways. Eleven additional individuals were released at Banana Bank, where a concentration of stenodermatines (*Sturnira*, *Uroderma*, *Vampyressa*, *Chiroderma*, *Artibeus*, and *Vampyrops*) was observed. The remaining localities were in upland evergreen seasonal forest and in disturbed village vegetation. A specimen in the collection of St. John's College, Belize City, was collected by E. L. Tyson in Columbia Forest.

I follow Dickerman et al. (1981) for the taxonomic assignment of the subspecific epithet.

Vampyroides caraccioli major G. M. Allen, 1908

SPECIMENS EXAMINED—**BELIZE.** Toledo: Aguacate, 1 ♂ (CM); Big Fall, 1.9 km ENE Río Grande Bridge, 1 ♂ (CM), 1 ♂ (FMNH); Big Fall, 2.1 km E Río Grande Bridge, 1 ♂ (BM); Crique Negro, Columbia Forest, 1 ♂ (BM), 1 ♂, 1 ♀ (MSU); Salamanca Camp, 1 ♂ (USNM); 1.6 km N Salamanca Camp, Columbia Forest, 1 ♂ (FMNH); 2.1 km NNE Salamanca Camp, Columbia Forest, 4 ♂♂, 1 ♀ (CM); San Antonio, 1 ♀ (FMNH).

The published distribution of *Vampyroides caraccioli major* northwestward of Costa Rica and Panama is confined to the Gulf-Caribbean lowlands as far as southern Mexico (Oaxaca, southern Veracruz, Chiapas); elevational data are less than 300 m. The records from Belize extend the range of this stenodermatine north of Izabal (Sanborn, 1936).

The Belizean localities represent habitats of riparian lowland and upland evergreen seasonal forests and village secondary vegetation. The capture dates cover both the dry and wet seasons (March, April, May, July–September, December).

I follow Carter and Dolan (1978) for the correct spelling of *Vampyroides caraccioli*.

Vampyressa pusilla thyone Thomas, 1909

SPECIMENS EXAMINED—**BELIZE.** Cayo: 1.6 km NW Augustine, 3 ♂♂, 1 ♀ (CM); Banana Bank, 1 ♀ (FMNH); Blancaneaux, 8.3 km NNE Augustine, 1 ♀ (FSM). Toledo: vicinity Aguacate, 1 ♀ (BM), 3 ♀♀ (CM); 1.2 km E Aguacate, 1 ♂, 1 ♀ (CM); Big Fall, 1 km E Río Grande Bridge, 1 ♀ (CM); Big Fall, 2.1 km E Río Grande Bridge, 1 ♂ (CM); Big Fall, 1.9 km ENE Río Grande Bridge, 1 ♂, 1 ♀ (CM), 1 ♀ (FMNH); Crique Negro, Columbia Forest, 1 ♂ (MSU), 1 ♂ (USNM); Forest Home, 1 ♂ (MSU); Pueblo Viejo, 1 ♀ (FMNH); 1.6 km NNE Salamanca Camp, Columbia Forest, 1 ♂, 2 ♀♀ (FMNH).

The general distribution of the little yellow-eared bat extends from southern (Oaxaca, southern Veracruz, Chiapas) and peninsular (Campeche) Mexico and continues southeastward along the Caribbean slope to both the Pacific and Caribbean corridors of southern Nicaragua, Costa Rica, and Panama, into South America. Elevational data are primarily lowland, from sea level up to a recorded 2200 m. Peterson (1966) reported the only record of *Vampyressa pusilla* in Belize, from Rockstone Pond, Belize District. There are also previous records from El Petén (Rick, 1968) and southeastern

Campeche (Jones et al., 1973). This account provides additional records of this species.

These specimens of *Vampyressa pusilla* were collected (February–May, July–September, December) in moist habitats, the majority of which were associated directly with riparian vegetation or in village and pasture-edge vegetation situated near rivers. Evergreen seasonal forest provided an upland habitat.

Chiroderma villosum jesupi J. A. Allen, 1900

SPECIMENS EXAMINED—**BELIZE.** Cayo: Banana Bank, 1 ♂, 5 ♀♀ (FMNH). Corozal: Chan Chen, 1 ♂ (FMNH). Toledo: Big Fall, vicinity Río Grande Bridge, 1 ♂ (FMNH); Big Fall, 1.7 km NE Río Grande Bridge, 1 ♀ (MSU); Big Fall, 1.9 km ENE Río Grande Bridge, 1 ♂, 1 ♀ (CM); San Antonio, 1 ♂ (FMNH); 1 km WNW San Pedro Columbia, 1 ♀ (FMNH). GUATEMALA. El Petén: Parque Nacional Tikal, 1 ♂ (FMNH).

The Middle American occurrence of *Chiroderma villosum* has been documented in southern (Oaxaca, southern Veracruz, Chiapas) and peninsular (Campeche, Quintana Roo) Mexico, Guatemala, Nicaragua, Costa Rica, and Panama. Hellebuyck et al. (1985) recently reported this fruit bat from El Salvador. Locality records reach from the coastal lowlands to upland habitats at 1300 m. Southeastern Campeche (Jones et al., 1973) and northern Quintana Roo (Birney et al., 1974) are previous Caribbean lowland localities, in addition to these first records from Belize and El Petén.

All but one of the Belizean *Chiroderma* were associated either directly with or in the vicinity of riparian evergreen or semi-evergreen seasonal forests (April, May, August, September, December). One individual was captured (15 November) in village orchard vegetation. Five additional individuals were released at Banana Bank. The Tikal specimen was captured (24 March) along the permanent water pool mentioned in the *Tonatia evotis* account.

Artibeus toltecus toltecus (Saussure, 1860)

SPECIMENS EXAMINED—**BELIZE.** Cayo: vicinity Augustine, 2 ♂♂, 4 ♀♀ (FSM); 1.6 km NW Augustine, Río Frio, 1 ♂, 1 ♀ (FMNH), 5 ♂♂ (TTU), 4 ♂♂ (CM); "Río On," ? km N Augustine, 1 ♀ (TTU); 1.1 km S Baldy Beacon, Bald Hills, 3 ♀♀ (CM); vicinity San Luis, 7.1 km SSW Augustine, 1 ♀ (TTU). Toledo:

Orange Point, 1 ♀ (FMNH); Pueblo Viejo, 3 ♀♀ (FMNH); Unión Camp, 5 ♂♂, 4 ♀♀ (CM).

In his revision of the small *Artibeus* of Middle America, Davis (1969) recognized the range of *Artibeus toltecus toltecus* from southern Tamaulipas, Mexico, southeastward along the mountainous region of the Gulf versant, upland of southern Mexico, Guatemala, Honduras, Nicaragua, and Costa Rica. He did not examine Panamanian specimens. Handley (1966) summarized the Panamanian localities for *A. toltecus*. This bat primarily occurs at elevations between 328 and 1640 m, although elevations near sea level were recorded (Davis, 1969). Consequently, the occurrence of *A. toltecus* in the Maya Mountain range of southern Belize and southeastern El Petén was not unexpected. These Belizean localities represent the first northern Caribbean lowland records.

The Belizean localities range in elevation from near sea level to approximately 720 m. *Artibeus toltecus* is more common at the higher elevations. These dark-colored *Artibeus* were captured (December–February, April, June, September) in habitats of deciduous seasonal forest, semi-evergreen seasonal forest, transitional forest, and pine forest-savanna.

The subspecies *toltecus* is applied, based on the proximity of Belize to its distribution as defined by Davis (1969).

Centurio senex senex Gray, 1842

SPECIMENS EXAMINED—BELIZE. **Belize:** 1.4 km S San Pedro, Ambergris Caye, 1 ♂, 1 ♀ (FMNH). **Cayo:** 1.6 km NW Augustine, Río Frío, 1 ♂ (TTU); vicinity Augustine, Río On, 1 ♀ (TTU); Blanca-neaux, 8.3 km NNE Augustine, 1 ♀ (FSM); Central Farm, 1 ♂, 1 ♀ (FMNH); Teakettle, Young Gal Road at Belize River, 1 ♂, 1 ♀ (FMNH); Xunantunich, 1 ♂ (FMNH). **Corozal:** 1.2 km E, 1.6 km N Corozal, 1 ♂ (LSUMZ). **Orange Walk:** 1.6 km NW San Antonio, Río Hondo, 1 ♀ (FMNH). **Toledo:** Big Fall, 1.9 km ENE Río Grande Bridge, 1 ♂ (CM); Crique Negro, Columbia Forest, 1 ♂, 1 ♀ (USNM); Forest Home, 1 ♀ (AMNH); vicinity Unión Camp, 2 ♀♀ (BM), 1 ♀ (CM). **GUATEMALA. Alta Verapaz:** Lanquin, vicinity Lanquin Cave, approx. 149 km WSW Puerto Barrios, 1 ♂ (AMNH). **Izabal:** 25 km SSW Puerto Barrios, 1 ♂, 5 ♀♀ (TCWC).

The recorded distribution of the wrinkle-faced bat extends from western (southern Sinaloa), northeastern (southern Tamaulipas), and peninsular (Campeche and Quintana Roo) Mexico and

continues southeastward through Central America at principally lower to upland elevations (sea level to 1882 m). The records given here are the first for Belize, Alta Verapaz, and Izabal.

The distribution of this unusual bat in Belize reflects apparent ecological flexibility. *Centurio senex* has been captured in low littoral forest and mangrove swamp edge on the coastal sand strip of Ambergris Caye, to about 720 m in evergreen and semi-evergreen seasonal forest on the southern slope of the Maya Mountains. Evergreen seasonal and transitional forests, secondary forest, and agriculturally disturbed areas provide additional habitats. This bat was captured throughout the year. Two males and one female were mist netted and released at Orange Point, Toledo District. Brother N. Sullivan collected (15–17 January) the specimen from Alta Verapaz, but I assume the bat was captured outside of Lanquin Cave. The specimens from Izabal were obtained (February, March) by D. C. Carter and field party. Field data are limited, but four *Centurio* were captured over a stream.

Diphylla ecaudata Spix, 1823

SPECIMENS EXAMINED—BELIZE. **Cayo:** vicinity Augustine, 1 ♂ (ROM); San Antonio, 1 ♂ (FMNH). **Toledo:** Crique Jute, 1 ♂ (AMNH); San Antonio, 1 ♀ (FMNH); Santa Elena, 1 ♀ (FMNH).

The distribution of *Diphylla ecaudata* appears primarily restricted along the Gulf side and in the Yucatán Peninsula of Mexico southeastward throughout Central America, where this bat occurs from the coastal lowlands up into the mountainous highlands (1880 m). The hairy-legged vampire bat has been recorded from El Petén (McCarthy, 1982) and Quintana Roo (Jones et al., 1973). The specimens reported here are the first records from Belize.

Four of the localities represent village environments where *Diphylla* was captured (April, July, August, December) along with *Desmodus rotundus* during vampire bat control activities. Mist netting was carried out in direct immediacy to domestic livestock and homes. The feeding activities of *Diphylla* in these villages were not documented, although one blood meal was obtained for analysis. P. Boreham, Imperial College Field Station, England, reported (in litt.) a weak precipitin reaction for a mammal host from the blood meal sample without a response for bird or reptile. It is not known if this blood meal was obtained in the vil-

lage (Santa Elena). Gardner (1977) summarized the sanguivorous preference of *Diphylla* as for primarily avian hosts. The hairy-legged vampire from Augustine was apparently taken (22 February) in a deciduous seasonal forest.

Family NATALIDAE

Natalus stramineus saturatus

Dalquest and Hall, 1949

SPECIMENS EXAMINED—BELIZE. **Cayo:** 1.6 km NW Augustine, Río Frio, 2 ♂♂, 2 ♀♀ (FSM); 0.8 km W Augustine, 2 ♂♂, 3 ♀♀ (CM); 1.5 km N Augustine, 5 ♀♀ (CM); Sibun Camp, Hummingbird Hwy. at Silver Creek, 1 ♀ (FMNH). **Orange Walk:** Richmond Hill (Goat Hill), 8.9 km SSW Orange Walk Town, 1 ♀ (CM). **Stann Creek:** Kendal, 1 ♂ (FMNH). **Toledo:** vicinity Aguacate, 1 ♂, 3 ♀♀ (CM); 1.2 km E Aguacate, 1 ♀ (CM); Vista Hermosa, 3.7 km WNW Punta Gorda, 8 ♂♂, 6 ♀♀ (FMNH).

The northern range of *Natalus stramineus saturatus* extends from both northwestern (Sinaloa) and northeastern (Nuevo León) Mexico, including the Yucatán Peninsula, southeastward through Central America where the number of records for this species is noticeably reduced beyond Guatemala to Panama. Although predominately a lowland species, elevations were recorded as high as 2400 m. The presence of the funnel-eared bat in Belize was anticipated, as it appears to be well reported throughout the Gulf-Caribbean versant.

Those specimens obtained (April, August, September) at roost sites in Belize were from caves. Other capture localities include low riparian forest and open areas bordering on forest, in orchard habitats, and alongside a building.

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

Myotis elegans Hall, 1962

SPECIMENS EXAMINED—BELIZE. **Belize:** Belize City, Landivar, 1 ♀ (AMNH), 1 ♂, 1 ♀ (FMNH), 1 ♂ (MSU); Mussel Creek, 7.5 km W Burrell Boom, 1 ♂, 1 ♀ (FMNH).

LaVal (1973a) summarized the lowland distribution of *Myotis elegans*, ranging from the Gulf (eastern San Luis Potosí, Veracruz), Pacific coastal (Chiapas), and peninsular (southeastern Cam-

peche) regions of Mexico to Honduras, Nicaragua, and northeastern Costa Rica. Subsequent records were reported from the Pacific side of Costa Rica and the Caribbean lowlands of El Petén (LaVal, 1977; McCarthy, 1982). The majority of elevations are less than 120 m, ranging to 750 m. These additional Caribbean lowland localities are the first records from Belize.

Two elegant *Myotis* were netted (1 July) along a tractor track, in low riparian vegetation dominated by bamboo and thistle palms. Four individuals were obtained (January, February, May, December) at a coastal locality in low vegetation bordering on disturbed mangrove (*Rhizophora mangle*, *Avicennia germinans*) habitat.

Eptesicus furinalis gaumeri

(J. A. Allen, 1897)

SPECIMENS EXAMINED—BELIZE. **Belize:** Belize City, Landivar, 1 ♀ (CM). **Cayo:** Central Farm, 2 ♀♀ (CM), 5 ♂♂, 16 ♀♀ (FMNH), 2 ♂♂, 1 ♀ (TTU); Little Vaquero Creek, 9.3 km NNW Augustine, 1 ♂, 1 ♀ (FSM); Ontario, 5.5 km W Teakettle, 1 ♀ (FMNH); Teakettle, 1 ♂ (FMNH). **Corozal:** Estero Lagoon, 4 km W Patchakan, 1 ♂, 1 ♀ (FMNH); Santa Clara, 1 ♀ (FMNH). **Orange Walk:** Honey Camp Lagoon, 1 ♂, 2 ♀♀ (FMNH); Tower Hill, B.S.I. compound, 3 ♂♂ (CM), 1 ♂, 4 ♀♀ (FMNH); 2 km SSW Tower Hill Bridge, 1 ♀ (CM). **Stann Creek:** Melinda, 3 ♀♀ (FMNH); Dangriga (Stann Creek), 1 ♂ (USNM). **Toledo:** Orange Creek, 1.5 km S Punta Gorda, 1 ♀ (MSU); Punta Gorda, 1 ♀ (MSU).

The Mexican distribution of *Eptesicus furinalis gaumeri* ranges from the western (Jalisco) and the eastern (San Luis Potosí) versants southeastward to South America. Davis (1965), Disney (1968), and Starrett and Casebeer (1968) reported records from all of the Central American countries except El Salvador. Lowland elevations range from near sea level to 1800 m, the majority being below 500 m. This tropical brown bat has been reported from El Petén (Rick, 1968; McCarthy, 1982) and Quintana Roo (Jones et al., 1973). The localities here are additional records for Belize.

Disney (1968) did not present locality data for his two specimens of *Eptesicus furinalis*. Both were males, captured (16 November, 29 December) in Cayo District, near Central Farm and Esperanza (4.5 km W Central Farm). These are located in British Museum (Natural History). An additional 196 individuals were captured from three of the localities reported here; the majority of these were

banded and released during a behavioral study. The majority was found in direct association with buildings, utilizing the infrastructure of the walls or floors and the space behind window shutters as roost sites. Individuals have been taken over water (creeks and a swimming pool) at three localities and in riparian vegetation along two lagoons.

Lasiurus borealis (Müller, 1776)

SPECIMENS EXAMINED—BELIZE. **Orange Walk:** Tower Hill, B.S.I. compound, 1 ♀ (FMNH). **Stann Creek:** 5.3 km NNW Quam Bank, Cockscomb Basin, 1 ♀ (CM). **GUATEMALA.** **El Petén:** Parque Nacional Tikal, 1 ♀ (FMNH).

The subspecies *teliotis* ranges southward from both the western and eastern regions of Mexico to Oaxaca and the northern Yucatán Peninsula. Specimens of *Lasiurus borealis* from the Guatemalan central highlands were assigned by Jones (1966) to the Central American subspecies *frantzii*, based on Handley (1960). Carter et al. (1966) assigned specimens from both lowland and highland localities in Chiapas to *frantzii*, suggesting that the region of the Isthmus of Tehuantepec represents the break between *frantzii* and *teliotis*. Hall (1981) concurred with this arrangement. Similarly, Jones et al. (1973) suggested that southern Mexico, including the Yucatán Peninsula, may represent a zone of intergradation between *frantzii* and *teliotis*. Few specimens of *L. borealis* are available from El Salvador (Burt & Stirton, 1961), Honduras (Goodwin, 1942b), Nicaragua (Davis & Carter, 1962—as *L. b. teliotis*), Costa Rica (Goodwin, 1946; Gardner et al., 1970) and Panama (Handley, 1966). Recorded elevations (near sea level to about 2540 m) are primarily low or moderate (< 1155 m). Koopman (1959) reported the only record from Quintana Roo. This account represents the first records for Belize and eastern Guatemala from El Petén.

The red bats captured in Belize (April, May) were netted over a stream and a swimming pool. The Tikal specimen was taken (30 July) while it was flying in an open area near a large man-made reservoir.

I hesitate to assign a subspecific designation because I see no practical purpose in doing so until adequate series of specimens from throughout the range of *Lasiurus borealis* become available. Handley (1960) had fewer specimens of *L. borealis* at hand for a proper evaluation of subspecific vari-

ation. Consequently, the limits of the distributions for the recognized subspecies remain unresolved.

Lasiurus ega (Gervais, 1855)

SPECIMENS EXAMINED—BELIZE. **Belize:** Tropical Park, Mi. 14.5 Western Hwy., 1 ♂ (FMNH). **Orange Walk:** Tower Hill, B.S.I. compound, 2 ♂♂ (FMNH), 1 ♂ (CM). **Stann Creek:** 5.3 km WNW Quam Bank, Cockscomb Basin, 2 ♂♂, 1 ♀ (CM). **Toledo:** Big Fall, 1.7 km NE Río Grande Bridge, 1 ♀ (CM); Orange Creek, 1.5 km SW Punta Gorda, 1 ♂ (MSU).

Similar to *Lasiurus borealis*, the distribution for the two recognized subspecies of the yellowish bat is not well understood. While *L. e. panamensis* was recognized along the Pacific versant of Chiapas (Baker & Patton, 1967) and Guatemala (Dolan & Carter, 1979; Dickerman et al., 1981), Goodwin (1969) identified *panamensis* from the moderate elevations of the Gulf drainage in northern Oaxaca and suspected *L. e. xanthinus* may occur in the drier Pacific portion of that state. Baker et al. (1971) determined the variation in karyotypes and pelage color of *L. ega* from near Brownsville, Texas, resembled those from eastern coastal and southern Mexico and referred the Texas specimens to *L. e. panamensis*. Meanwhile, *L. e. xanthinus* was recognized in the Yucatán Peninsula (Jones et al., 1973; Birney et al., 1974). The yellow bat is poorly represented from the remainder of Central America, which includes Honduras (Goodwin, 1942b; LaVal, 1969; Greenbaum & Jones, 1978), Costa Rica (Goodwin, 1946; Starrett & Casebeer, 1968; Gardner et al., 1970; LaVal & Fitch, 1977), and Panama (Handley, 1966). Where designated, the subspecies *panamensis* has been applied to these preceding Central American localities, although Hall (1981) did not acknowledge *panamensis* north of Costa Rica. Elevational data are similar to those for *L. borealis*. Ingles (1958) reported two *L. ega* from Quintana Roo. Jones et al. (1973, p. 23) translated Ingles's locality from Spanish as "Puerto Morelos" when it was actually a collection site only 16 km east of the state border with Yucatán, along the highway from Valladolid (Yucatán) to Puerto Morelos (Quintana Roo). Alvarez and Ramírez-P. (1972) cited an additional Caribbean lowland record from southeastern Campeche. This account provides the first *L. ega* records from Belize.

Eight yellowish bats were captured (April, May) over streams, a river, and a swimming pool. Another was netted (18 August) at about 5 m above

the ground while circling a building located in grass-sedge savanna.

Lasiurus intermedius intermedius

(H. Allen, 1862)

SPECIMEN EXAMINED—**BELIZE.** Toledo: Crique Jute, 1 ♀ (CM).

The range of this subspecies of the large yellow bat extends southeastward from Mexico to Honduras (Handley, 1960; Carter et al., 1966), El Salvador (Hellebuyck et al., 1985), and Guatemala (Carter et al., 1966). *Lasiurus intermedius* has been recorded in Mexico from the northern Yucatán Peninsula and Chiapas northwestward to Texas along the eastern coast and to Sinaloa on the Pacific side. Recorded elevations range from lowland to highland (1620 m) habitats. A single specimen of *L. intermedius* from northern Quintana Roo (Birney et al., 1974) provided the only record for that Mexican state. This Belizean specimen represents the first record for the country.

The above specimen was obtained on 30 March over the stream Crique Jute surrounded by secondary vegetation.

Bauerus dubiaquercus (Van Gelder, 1959)

SPECIMENS EXAMINED—**BELIZE.** Cayo: 1.6 km NW Augustine, Río Frío, 1 ♀ (ROM). Toledo: 2.1 km NNE Salamanca Camp, Columbia Forest, 1 ♂ (CM).

The published localities of the rarely encountered *Bauerus dubiaquercus* are scattered from the Islas Tres Mariás (Nayarit), Jalisco, and southern Veracruz in Mexico to eastern Honduras and Costa Rica (Engstrom & Wilson, 1981; Dinerstein, 1985). Mainland elevations range from approximately 460 to 1450 m and appear to represent mid-elevation and montane forest habitats (Pine, 1966; Pine et al., 1971; Engstrom & Wilson, 1981; Dinerstein, 1985). These first occurrences of *Bauerus* in Belize extend northward a scattered distribution along the northern Caribbean lowlands in Central America.

J. Kamstra and J. Fragoso collected (8 July) one specimen inside the main Río Frío cave, located in a deciduous seasonal forest at approximately 410 m. The second *Bauerus* was netted (26 March) along an open forestry track in an evergreen forest at about 180 m.

Engstrom and Wilson (1981) and Martin and Schmidly (1982) evaluated the taxonomic status of *Antrozous* (*Bauerus*) *dubiaquercus* and concluded the chromosomal, cranial, postcranial, and phallic differences between this bat and *Antrozous* (*Antrozous*) *pallidus* were sufficient to recognize *Bauerus* as a distinct genus. I follow their conclusions and agree that the species is monotypic since the mainland sample size that previously was assigned to *A. d. meyeri* Pine, 1971, was limited to a total of five specimens representing both sexes.

Family MOLOSSIDAE

Eumops auripendulus auripendulus (Shaw, 1800)

SPECIMENS EXAMINED—**BELIZE.** Orange Walk: Orange Walk Town, 1 ? (CM); Tower Hill, B.S.I. compound, 1 ♀ (FMNH).

The recorded distribution of *Eumops auripendulus auripendulus* includes both moist uplands and drier lowland coastal and plateau areas, ranging from eastern Oaxaca, Tabasco, Quintana Roo, and Belize, through Guatemala, western Honduras, El Salvador, western Nicaragua, Costa Rica, and Panama, into South America (Eger, 1974; Greenbaum & Jones, 1978). Villa-R. (1956) and Eger (1974), respectively, reported this free-tailed bat from Quintana Roo and Belize (Belize District: Rockstone Pond). This account provides the second and third records for Belize.

The Orange Walk specimen consists of a mandible and partial skull, which were recovered from an owl (*Tyto alba*) roost in a church tower. The second specimen was discovered (July) alive by L. G. Hoevers, after it apparently was attacked by a bird.

Eumops bonariensis nanus (Miller, 1900)

SPECIMENS EXAMINED—**BELIZE.** Orange Walk: Orange Walk Town, 2 ?? (CM).

Eger (1977) summarized the few available Middle American localities for this small mastiff bat, which are limited to southeastern Mexico (southern Veracruz, Tabasco, Yucatán), eastern Honduras, and Panama. These and additional localities in Panama (Dolan & Carter, 1979) and Nicaragua (Hall, 1981) are restricted to coastal lowland environments. This is the first recording of *Eumops bonariensis* for Belize.

Entire specimens of *Eumops bonariensis* as yet are unavailable from Belize. Documentation is based on two fragmented sets of maxillary tooth-rows, which were sifted from regurgitated rubble beneath an owl (*Tyto alba*) roost in a church tower.

***Molossus ater nigricans* (Miller, 1902)**

SPECIMENS EXAMINED—GUATEMALA. Izabal: 25 km SSW Puerto Barrios, 2 ♂♂, 4 ♀♀ (TCWC).

The black mastiff bat is a common inhabitant of roof spaces throughout its lowland Middle American range, from western (Sinaloa) and eastern (Tamaulipas) Mexico southeastward into South America. This species has been reported from the Caribbean lowlands of Quintana Roo (Jones et al., 1973) and Belize (Murie, 1935; Pendergast, 1979). These *Molossus ater* from Izabal are the first record for that department. Apparently, all of these specimens were collected on 15 February over a stream by D. C. Carter and his field party.

Addendum

While this paper was in press, other papers and additional information concerning bats in Belize came to my attention. Two recent papers provide new country records of the glossophagines *Lichonycteris obscura* (Hill, 1985) and *Hylonycteris underwoodi* (McCarthy & Blake, 1987), which increase the known bat fauna to 68 species. Both records are from Toledo District. McCarthy and Blake (1987) also reported the occurrence of the following bats: *Rhynchonycteris naso*, *Saccopteryx bilineata*, *Balantiopteryx io*, *Noctilio leporinus*, *Pteronotus parnellii*, *Micronycteris megalotis*, *M. nicefori*, *M. schmidtorum*, *Tonatia evotis*, *Mimon cozumelae*, *Phyllostomus discolor*, *Trachops cirrhosus*, *Chrotopterus auritus*, *Vampyrus spectrum*, *Glossophaga soricina*, *Carollia brevicauda*, *C. perspicillata*, *Sturnira lilium*, *Uroderma bilobatum*, *Vampyressa pusilla*, *Artibeus jamaicensis*, *A. lituratus*, *A. phaeotis*, *A. watsoni*, *Centurio senex*, *Natalus stramineus*, *Rhogeessa tumida*, *Bauerus dubiaquercus*, and *Eumops underwoodi*.

HILL, J. E. 1985. The status of *Lichonycteris degener* Miller, 1931 (Chiroptera: Phyllostomidae). *Mammalia*, 49(4): 579–582.

MCCARTHY, T. J., AND M. BLAKE. 1987. Noteworthy

bat records from the Maya Mountains Forest Reserve, Belize. *Mammalia*, 51(1): 161–164.

A bat specimen from Stann Creek was reported (Miller & Allen, 1928, p. 180) as *Myotis nigricans nigricans*. I examined this specimen at USNM and found it to be an immature *Eptesicus furinalis*. It is included in this paper under the species account for the latter species.

MILLER, G. S., JR., AND G. M. ALLEN. 1928. The American bats of the genera *Myotis* and *Pisonyx*. *Bulletin of the United States National Museum*, 144: 1–218.

Silva-Taboada and Koopman (1964, p. 3) reported specimens of *Tadarida laticaudata* (= *Nyctinomops laticaudatus*) from Corozal District. Most of the bat species discussed in an unpublished dissertation by A. M. Cartwright were also reported by Kirkpatrick et al. (1975) and Cartwright and Kirkpatrick (1977). The remaining identifications (Cartwright, 1977, pp. 240, 242–246, 250, 251), which were from Belize District, included *Rhynchonycteris naso*, *Saccopteryx bilineata*, *Carollia brevicauda*, *C. perspicillata*, *Sturnira lilium*, *Artibeus lituratus*, *A. phaeotis*, *Desmodus rotundus*, *Eptesicus furinalis*, *Rhogeessa tumida*, and *Molossus molossus*. Baker et al. (1985, p. 236) reported cytogenetic data from specimens of *Rhogeessa tumida* that I collected in Belize District.

BAKER, R. J., J. W. BICKHAM, AND M. L. ARNOLD. 1985. Chromosomal evolution in *Rhogeessa* (Chiroptera: Vespertilionidae): Possible speciation by centric fusions. *Evolution*, 39(2): 233–243.

CARTWRIGHT, A. M. F. 1977. Patterns of Neotropical chiropteran reproduction including histological and ecological aspects of bats collected in Belize. Ed.D. diss., Ball State University, Muncie, Ind., 278 pp.

SILVA-TABOADA, G., AND K. F. KOOPMAN. 1964. Notes on the occurrence and ecology of *Tadarida laticaudata yucatanica* in eastern Cuba. *American Museum Novitates*, 2175: 1–6.

A mammal checklist was included in a resource paper on Belize (Hartshorn et al., 1984). The list of bats supposedly was a compilation of known and expected species. The result is inaccurate and undocumented. The reader is referred to the checklist in the Appendix as correct.

HARTSHORN, G., ET AL. 1984. Belize. Country Environmental Profile. A Field Study. United States

Additional specimens of *Micronycteris megalotis* (2: Belize District, Cayo District), *Artibeus toltecus* (11: Cayo District), *Centurio senex* (2: Cayo District), and *Diphylla ecaudata* (3: Cayo District) were found in the mammal collection of Royal Ontario Museum. D. J. Tallman collected specimens of *M. megalotis* (1) and *Mimon cozumelae* (2) from Orange Walk District, which were deposited in Bell Museum of Natural History, University of Minnesota. I secured further voucher specimens (AMNH) of *Mimon cozumelae* (1), *Vampyroides caraccioli* (1), *Vampyressa pusilla* (1), and *Bauerus dubiaquercus* (1) from Toledo District.

Certain specimens (*Sturnira lilium* and *Rhogeessa tumida*) that were catalogued by Dobson (1878, pp. 540, 246) were listed as collected in "Honduras." These were obtained by D. Dyson and H. Cuming between November 1844 and late 1845. During that time, "Honduras" corresponded to the present region that extends from southern Quintana Roo, Mexico, southeastward to northern Honduras. Many early collectors did not differentiate between the area of Belize ("British settlement in Honduras") and that of the Republic of Honduras ("Spanish Honduras"), but recorded only "Honduras" or "Bay of Honduras" without further locality data. The above specimens did not originate from present day Honduras, but were collected in Belize. Additional specimens of *Micronycteris megalotis* (Dobson, 1878, p. 479) from the "Bay of Honduras" and *Rhynchonycteris naso* (Dobson, 1878, p. 368) from "Honduras" remain orphaned records of the historical literature.

Uroderma bilobatum was reported (Sanchez-H. et al., 1986) from southern Quintana Roo while this volume was delayed. Ten specimens were collected at Ruinas de Kohunlich (18°23'N; 88°42'W), about 16 km W Estevez on the Belizean border. Four other species (*Pteronotus davyi*, *Mormoops megalophylla*, *Tonatia exotis*, *T. minuta*) were documented for the first time from Quintana Roo, from localities within 35 km of the northern border of Belize. The known bat fauna of Quintana Roo is now represented by 36 species.

SANCHEZ-H., O., G. TELLEZ-G., R. A. MEDELLÍN, AND G. URBANO-V. 1986. New records of mammals from Quintana Roo, México. *Mammalia*, 50(2): 275–278.

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Gazetteer

The numbers for localities are plotted in Figure 1.

MEXICO

QUINTANA ROO

1. Bacalar 18°43'N; 88°22'W

GUATEMALA

EL PETÉN

2. Parque Nacional Tikal 17°20'N; 89°39'W
3. Poptún 16°21'N; 89°26'W

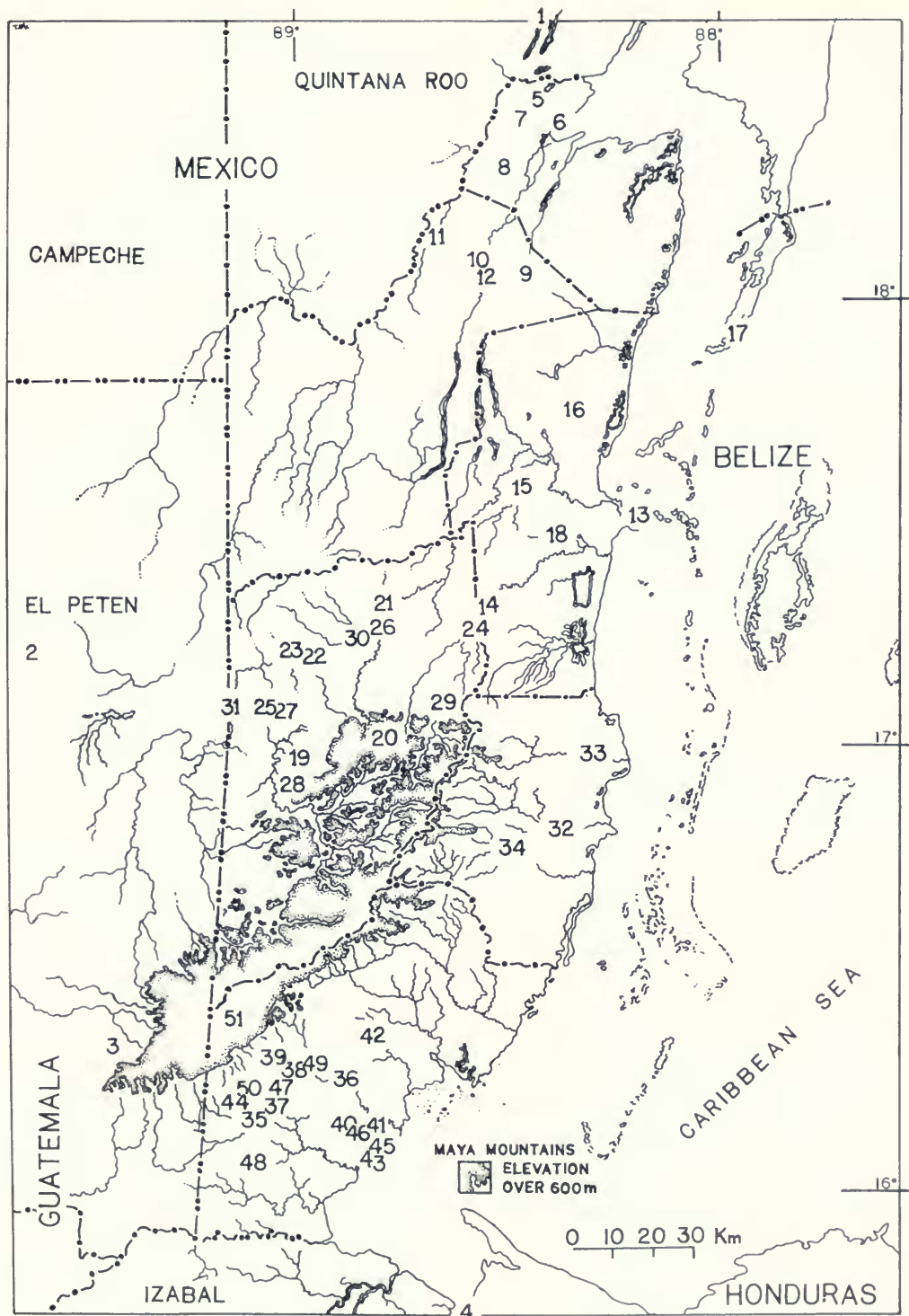


FIG. 1. Distribution of localities in the districts of Belize; Quintana Roo, Mexico; and El Petén and Izabal, Guatemala. The numbers refer to those listed in the Gazetteer. This map does not display the Caribbean lowlands of Guatemala and Mexico in their entirety.

IZABAL

4. Puerto Barrios 15°43'N; 88°36'W

BELIZE

COROZAL DISTRICT

5. Chan Chen 18°26'N; 88°27'W
6. Corozal 18°24'N; 88°24'W
7. Patchakan 18°24'N; 88°29'W
8. Santa Clara 18°18'N; 88°30'W

ORANGE WALK DISTRICT

9. Honey Camp Lagoon 18°03'N; 88°27'W
10. Orange Walk Town 18°05'N; 88°34'W
11. San Antonio, Río Hondo 18°11'N; 88°39'W
12. Tower Hill, Belize Sugar Industries (B.S.I.) 18°02'N; 88°34'W

BELIZE DISTRICT

13. Belize City 17°30'N; 88°12'W
14. Churchyard 17°18'N; 88°33'W
15. Mussel Creek 17°39'N; 88°24'W
16. Rockstone Pond (Altun Ha) 17°46'N; 88°22'W
17. San Pedro, Ambergris Caye 17°55'N; 87°58'W
18. Tropical Park 17°28'N; 88°23'W

CAYO DISTRICT

19. Augustine 16°58'N; 88°59'W
20. Baldy Beacon, Bald Hills 17°01'N; 88°47'W
21. Banana Bank 17°15'N; 88°48'W
22. Barton Creek at Western Hwy. 17°13'N; 89°57'W
23. Central Farm and Listowel 17°11'N; 89°00'W
24. C.I.T.A., Sibun River at Indian Creek 17°16'N; 88°34'W
25. Macaw Bank 17°05'N; 89°04'W
26. Roaring Creek 17°15'N; 88°47'W
27. San Antonio 17°05'N; 89°01'W
28. San Luis 16°54'N; 89°00'W
29. Sibun Camp 17°05'N; 88°39'W

30. Teakettle 17°13'N; 88°51'W
31. Xunantunich 17°05'N; 89°08'W

STANN CREEK DISTRICT

32. Kendal 16°49'N; 88°22'W
33. Melinda 17°00'N; 88°18'W
34. Quam Bank, Cockscomb Basin 16°47'N; 88°28'W

TOLEDO DISTRICT

35. Aguacate 16°10'N; 89°06'W
36. Big Fall 16°15'N; 88°53'W
37. Blue Creek 16°12'N; 89°03'W
38. Crique Jute and Salamanca Camp (Forestry Camp) 16°16'N; 89°01'W
39. Crique Negro, Columbia Forest 16°17'N; 89°02'W
40. Cuevas Creek and Jacinto Creek Bridges, at Punta Gorda Road 16°09'N; 88°53'W
41. Forest Home 16°08'N; 88°50'W
42. Nimli Punit 16°20'N; 88°48'W
43. Orange Point 16°04'N; 88°49'W
44. Pueblo Viejo 16°13'N; 89°09'W
45. Punta Gorda 16°07'N; 88°48'W
46. Rice Station (Agricultural Station) 16°08'N; 88°51'W
47. San Antonio 16°15'N; 88°02'W
48. San Lucas (deserted) 16°05'N; 89°06'W
49. San Pedro Columbia 16°17'N; 88°58'W
50. Santa Elena 16°14'N; 89°06'W
51. Unión Camp 16°24'N; 89°08'W

Appendix

This district checklist of the bat fauna of Belize is based on published accounts. The citations refer to the initial taxonomic treatments of specimens. Districts are arranged from north (left) to south (right). Abbreviations are as follows: Cz = Corozal; OW = Orange Walk; Bz = Belize; Cy = Cayo; SC = Stann Creek; Td = Toledo.

In order to give an accurate list of bats, it is necessary to present certain discrepancies that have appeared in the literature. Dobson (1878) referred to certain early specimens that may have originated from Belize. One reference (Dobson, 1878,

p. 520) to “Half-Moon Key, Honduras” for a specimen of *Artibeus perspicillatus* (= *jamaicensis*) belongs to Belize, since this specimen was collected by O. Salvin (see Salvin, 1864). Sanderson (1941, p. 228) recalled “*Anoura* sp.” in his descriptive narrative of a visit to then British Honduras. This species was not identified (Hershkovitz, 1951) in the Sanderson bat collection. *Diaemus youngi* was cited from Belize (Villa-R., 1966, p. 340), but R. L. Peterson (pers. comm.) stated that the specimen in question was actually from Guyana. Specimens of 17 species of bats were listed in Disney (1968)

without locality data. These specimens, which are housed in British Museum (Natural History) and Royal Ontario Museum, are all from Cayo District. J. L. Eger (pers. comm.) identified the questionable specimen of *Molossus bondae* in Disney (1968, p. 7) as *M. molossus*. Quinones et al. (1978, p. 559) reported six species, which I collected and identified, without the exact locality information other than “the Maya Mountains region.” This locality is 1 km NW Augustine, Cayo District. Sixty-six bat species are recognized in Belize.

Species	Cz	OW	Bz	Cy	SC	Td	References
<i>Rhynchonycteris naso</i>	X	...	...	Murie, 1935, pp. 17–18; Disney, 1968, p. 7
<i>Saccopteryx bilineata</i>	...	X	X	X	X	...	Sanborn, 1937, p. 331; Hershkovitz, 1951, p. 553; Disney, 1968, p. 7; Pendergast, 1979, p. 10
<i>Saccopteryx leptura</i>	X	This paper
<i>Peropteryx kappleri</i>	X	...	...	Cartwright & Kirkpatrick, 1977, p. 466
<i>Peropteryx macrotis</i>	X	...	Hershkovitz, 1951, p. 553
<i>Centronycteris maximilliani</i>	X	...	Sanborn, 1941, p. 372
<i>Balantiopteryx io</i>	X	X	...	...	Kirkpatrick et al., 1975, p. 330; Cartwright & Kirkpatrick, 1977, p. 466
<i>Diclidurus virgo</i>	X	...	...	This paper
<i>Noctilio leporinus</i>	...	X	...	X	X	X	This paper
<i>Pteronotus davyi</i>	...	X	...	X	...	X	Disney, 1968, p. 7; this paper
<i>Pteronotus parnellii</i>	X	X	X	...	Hershkovitz, 1951, pp. 553–554; Smith, 1972, p. 74; Cartwright & Kirkpatrick, 1977, p. 466; Quinones et al., 1978, p. 559; Pendergast, 1979, p. 10
<i>Pteronotus personatus</i>	X	This paper
<i>Mormoops megalophylla</i>	X	X	X	X	This paper
<i>Micronycteris brachyotis</i>	X	...	X	This paper
<i>Micronycteris megalotis</i>	X	X	...	...	...	X	This paper
<i>Micronycteris nicefori</i>	X	This paper
<i>Micronycteris schmidtorum</i>	X	X	...	...	...	X	This paper
<i>Lonchorhina aurita</i>	X	X	This paper
<i>Macrophyllum macrophyllum</i>	X	...	X	This paper
<i>Tonatia bidens</i>	X	...	X	This paper
<i>Tonatia evotis</i>	X	X	...	Sanborn, 1941, pp. 372–373; Disney, 1968, p. 7
<i>Tonatia minuta</i>	X	...	X	Disney, 1968, p. 7; this paper
<i>Mimon cozumelae</i>	X	X	...	X	This paper
<i>Mimon crenulatum</i>	X	...	X	Ruiz, 1983, p. 374; this paper
<i>Phyllostomus discolor</i>	X	This paper
<i>Phylloderma stenops</i>	X	This paper
<i>Trachops cirrhosus</i>	...	X	X	...	...	X	Sanborn, 1941, p. 374; Pendergast, 1979, p. 10; this paper
<i>Chrotopterus auritus</i>	X	This paper
<i>Vampyrum spectrum</i>	X	This paper
<i>Glossophaga commissarisi</i>	X	...	...	X	Webster & Jones, 1982, p. 5; this paper
<i>Glossophaga soricina</i>	X	X	...	...	Villa-R., 1966, p. 231; Disney, 1968, p. 7; Cartwright & Kirkpatrick, 1977, p. 466; Howell, 1977, p. 510; Quinones et al., 1978, p. 559; Pendergast, 1979, p. 10

Continued on next page

Species	Cz	OW	Bz	Cy	SC	Td	References
<i>Carollia breviceauda</i>	X	X	X	X	X	...	Herskovitz, 1951, pp. 555–556; Villa-R., 1966, p. 270; Disney, 1968, p. 7; Pine, 1972, p. 42; Quinones et al., 1978, p. 559; Pendergast, 1979, p. 10
<i>Carollia perspicillata</i>	...	...	X	X	X	...	Herskovitz, 1951, p. 555; Disney, 1968, p. 7; Pine, 1972, p. 42; Quinones et al., 1978, p. 559; Pendergast, 1979, p. 10
<i>Sturnira lilium</i>	...	...	X	X	...	...	Disney, 1968, p. 7; Pendergast, 1979, p. 10
<i>Uroderma bilobatum</i>	...	...	X	X	X	...	Disney, 1968, p. 7; Davis, 1968, p. 697; Pendergast, 1979, p. 10
<i>Vampyrops helleri</i>	...	...	...	X	...	X	This paper
<i>Vampyropes caraccioli</i>	...	...	...	...	...	X	This paper
<i>Vampyressa pusilla</i>	...	...	X	X	...	X	Peterson, 1966, p. 676; this paper
<i>Chiroderma villosum</i>	X	...	...	X	...	X	This paper
<i>Artibeus intermedius*</i>	X	...	...	...	...	...	Davis, 1984, p. 14
<i>Artibeus jamaicensis*</i>	X	X	X	X	...	...	Dobson, 1878, p. 520; Andersen, 1908, p. 263; Gaumer, 1917, p. 298; Disney, 1968, p. 7; Davis, 1970b, p. 118; Pendergast, 1971, p. 102
<i>Artibeus lituratus*</i>	X	X	X	...	Murie, 1935, p. 19; Herskovitz, 1951, pp. 556–557; Disney, 1968, p. 7; Pendergast, 1979, p. 10
<i>Artibeus phaeotis</i>	X	X	X	X	...	...	Disney 1968, p. 7; Davis, 1970a, p. 398; Pendergast, 1979, p. 10
<i>Artibeus toltecus</i>	...	...	...	X	...	X	This paper
<i>Artibeus watsoni</i>	...	X	X	...	...	...	Davis, 1970a, p. 393; Pendergast, 1979, p. 10
<i>Centurio senex</i>	X	X	X	X	...	X	This paper
<i>Desmodus rotundus</i>	...	...	X	X	X	...	Herskovitz, 1951, p. 557; Disney, 1968, p. 7; Cartwright & Kirkpatrick, 1977, p. 466; Quinones et al., 1978, p. 559; Pendergast, 1979, p. 10
<i>Diphylla ecaudata</i>	...	...	...	X	...	X	This paper
<i>Natalus stramineus</i>	...	X	...	X	X	X	This paper
<i>Thyroptera tricolor</i>	...	...	...	...	X	...	Sanborn, 1941, p. 382
<i>Myotis elegans</i>	...	...	X	...	...	...	This paper
<i>Myotis keaysi</i>	...	...	...	X	X	...	Herskovitz, 1951, pp. 557–558; LaVal, 1973a, p. 25; Quinones et al., 1978, p. 559
<i>Eptesicus furinalis</i>	X	X	X	X	X	X	Disney, 1968, p. 7; this paper
<i>Lasiurus borealis</i>	...	X	...	...	X	...	This paper
<i>Lasiurus ega</i>	...	X	X	...	X	X	This paper
<i>Lasiurus intermedius</i>	...	...	...	...	...	X	This paper
<i>Rhogeessa tumida</i>	...	...	X	X	...	...	LaVal, 1973b, p. 29; Kirkpatrick et al., 1975, p. 331
<i>Bauerus dubiaquercus</i>	...	...	...	X	...	X	This paper
<i>Nyctinomops laticaudatus</i>	...	...	...	X	...	...	Murie, 1935, p. 19
<i>Eumops auripendulus</i>	...	X	X	...	...	...	Eger, 1974, p. 5; this paper
<i>Eumops bonariensis</i>	...	X	...	...	...	...	This paper
<i>Eumops glaucinus</i>	...	...	...	X	...	...	Eger, 1977, p. 42
<i>Eumops underwoodi</i>	X	...	...	...	...	...	Eger, 1977, p. 55
<i>Molossus ater</i>	...	...	X	X	...	...	Murie, 1935, p. 19; Pendergast, 1979, p. 10
<i>Molossus molossus</i>	...	...	...	X	...	...	Murie, 1935, p. 19
<i>Molossus sinaloae</i>	...	...	X	X	X	...	Herskovitz, 1951, p. 559; Disney, 1968, p. 7

* Davis (1984) examined the *Artibeus* "lituratus" complex in Middle America and restored *Artibeus intermedius* J. A. Allen to specific status. Specimens cited in the publications listed for *A. jamaicensis* and *A. lituratus* should be reevaluated.